

I took a group of 50 normal people, volunteer blood donors and others, and found the non-filamentous cells per 100 white cells averaged 8.6 per cent for the group. This confirmed our assumption that, if a patient shows a modified

Schilling count of 15 or over we suspect some abnormal neutrophilic response.

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## TORSION OF THE TESTICLE

(WITH REPORT OF A CASE)

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**T**ORSION of the testicle is commoner than is usually realized or than one would imagine from the number of cases reported in the literature. It is therefore not unworthy of a short discussion, as every practitioner will probably see two or three cases.

**Etiology.**—Torsion never occurs in a normally developed and situated testis. There must always be some degree of underdevelopment or abnormal development. Owen has demonstrated that a testis in its normal position in the scrotum, with a normal mesorchium, cannot undergo torsion.

Numerous developmental factors have been described as contributing to this condition; we shall briefly enumerate a few of them. A disproportionately capacious tunica vaginalis is a common finding.<sup>1, 2</sup> Campbell<sup>3</sup> found the gubernaculum testis to be unusually long and lax or absent in 8 of his 15 cases. Other factors described are elongation of the globus minor, considerable separation of the epididymis from the testis, and an abnormal attachment of the mesorchium to the lower pole of the testis, resulting in a more horizontal position of the testicle in the scrotum.

Assuming the presence of one or more of these abnormalities, any slight exertion may be sufficient to cause torsion. Coughing, sneezing, straining at stool, have been the initiating factors in various cases, but the torsion may occur during sleep. Uffreduzzi states that the initiating mechanism is a spasm of the cremaster.

Torsion may occur in a fully descended testis or in an ectopic testis, as this latter is usually very mobile. In Uffreduzzi's series of 80 cases, 60 per cent of the torsions occurred in undescended testes. Torsion usually occurs during adolescence, the average age being 17.7

years, but it may occur in early infancy or in middle age. No cases have yet been reported of torsion occurring in old age. In O'Connor's<sup>4</sup> series of 124 cases, 70 involved the right testis and 54 the left. A few bilateral cases have been reported.<sup>4, 5</sup>

While the vast majority of cases are acute and result in destruction or removal of the testis, a few cases are subacute and recurrent. The attacks are relieved by detorsion, either spontaneous or manual.<sup>5, 6, 7</sup>

**Pathology.**—The torsion may occur either outside the tunica vaginalis or inside it, the latter being by far the commoner in the descended testis. The degree of torsion may be anything from a part of one revolution to several complete turns. The direction of rotation is almost always the same; clockwise on the left side, and counter-clockwise on the right.<sup>5</sup> The skin and subcutaneous tissues are thickened and oedematous. The tunica vaginalis is infiltrated and contains a thick, almost black, fluid. The testicle and epididymis are swollen and plum-coloured, and it may be impossible to distinguish them by palpation. Gangrene rapidly occurs from strangulation, and hæmatogenous infection may result in suppuration. If untreated the mass is eventually completely absorbed. In the recurrent cases there may be no changes whatever, but there is usually a greater or lesser degree of atrophy.

**Symptoms.**—These will of course differ according to the degree of strangulation, and may be very slight in the recurrent cases. In the typical acute torsion they are usually very severe. The onset is sudden, with agonizing testicular pain, which may be accompanied by nausea and vomiting and even severe shock. There may be reflex abdominal cramps suggestive of intestinal obstruction. There is a

swelling on the affected side, either in the scrotum or in the inguinal canal, or, rarely, at the site of an ectopic testis; in the latter cases the corresponding side of the scrotum will be observed to be empty. The temperature may rise with the onset of gangrene to 100° F. and there is often a mild leukocytosis. Frequency of micturition is occasionally observed.

**Diagnosis.**—Palpation will reveal the abnormal situation of the epididymis unless one or more complete turns have occurred, or unless the swelling is so great as to render accurate palpation impossible. The spasm of the cremaster is palpable. The history of sudden onset after slight strain is very suggestive, in view of the peculiar quality of the pain. There may be a history of previous similar attacks. The differential diagnosis may be exceedingly difficult, but the majority of wrong diagnoses are probably due to failure to think of this condition at all, owing to an exaggerated idea of its rarity. **Acute epididymo-orchitis.**—There will usually be a urethral discharge, or mumps, or some other source of infection. The temperature is usually higher, and there is a greater leukocytosis. The more gradual onset is a very valuable point. **Traumatic hæmatocele.**—This should be differentiated by the history of an injury to the testicle; torsion results from an indirect strain. There is usually more ecchymosis of the scrotum. **Strangulated hernia.**—This will only give trouble in the case of torsion of an undescended testicle, which should undergo immediate operation in any case. **Acute inguinal adenitis.**—The absence of the testis from the scrotum on the affected side, the sudden onset and nature of the pain, in conjunction with the probable absence of any cause for adenitis, should make the diagnosis clear. **Torsion of a hydatid of Morgagni.**—This may be impossible to differentiate, but as a rule the skin of the scrotum is not affected, and the symptoms are less severe.

#### TREATMENT

In the case of a descended testicle which is seen early an attempt at detorsion is well worth while. The knee-chest position is the best; the testicle should be gently rotated in the opposite direction to the usual direction of the twist. If the attempt is successful it will be noticed that rotation becomes easier, and that the testicle is lower in the scrotum. The thickening of the cord, due to spasm of the cremaster,

will disappear, and it will be possible when the oedema has subsided to identify the elements of the cord. An orchidopexy should be done later to prevent a recurrence.

If this attempt fails, do not persist. Immediate operation is necessary, as, of course, it is in all cases involving an undescended testis. No time must be lost if the testis is to be saved. For the same reason operation should be performed if there is any doubt in the diagnosis of any acute trouble in the scrotum or inguinal region.

When the testis is exposed it should be unwound and anchored securely to prevent a recurrence. In the case of an undescended testis an attempt may be made to place it in the scrotum. Castration should not be performed if there is any hope of the testis surviving. The essential aim is to save the testicle if it is at all possible.

**Prognosis.**—No fatalities have been reported from this condition. The acute torsion, if untreated, results in complete atrophy of the testis, while partial atrophy usually occurs in the recurrent cases. Early operation offers an excellent chance of saving the testicle.

#### CASE REPORT

The patient was 24 years of age, and his condition was discovered in the course of a periodic health examination.

His first attack occurred seven years previously, at the age of seventeen, and was more severe than any of the subsequent ones. This attack came on one morning while he was still in bed, but awake. The pain was localized to the region of the left external inguinal ring, and was only moderately severe. It fluctuated in intensity, but never was severe enough to occasion alarm. The patient remained in bed but was forced to rise several times to micturate, at intervals of about ten minutes. Each time, the pain was completely relieved for about two minutes, after which it would gradually return, finally reaching such a point that he would have to pass his urine again. The final voiding was followed by complete relief.

There were no further attacks for several months, after which they became more frequent, though less severe. The patient discovered the nature of his trouble during the second attack, and then successfully performed detorsion as soon as the attack began. The attacks now occur indiscriminately on both sides, at any hour of the day or night, often wakening the patient; he then assumes the knee-chest position, untwists the testicle, and goes back to sleep. The number of turns varies from one-half to two complete turns, usually about three-quarters. The intervals between attacks vary from half an hour to two or three months.

Examination revealed a slight degree of dystrophia adiposo-genitalis. The genitals are about the size of those of a sixteen-year-old boy. He stated that he was perfectly potent. The testes were fairly well descended, the right being slightly lower than the left. The long axes of the testes were almost horizontal. The testes were rather soft and insensitive. The patient denies any atrophy, and stated that there was still some growth. He refused operation on the ground that it is not worth while.

The case is interesting in view of the hypopituitarism, the triviality of the symptoms, and the absence of atrophy.

### SUMMARY

An unusual case of recurrent torsion of the testicle is presented, with a brief discussion of the condition. It is pointed out that the subject is worthy of consideration, since it is commoner than is usually realized.

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## THE USE OF FASCIA LATA IN THE TREATMENT OF FALLEN METATARSAL ARCHES\*

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THE subject for consideration is a description of an original surgical procedure that attempts to alleviate pain and discomfort in the feet of those who suffer from the condition diagnosed variously as metatarsalgia, fallen metatarsal arch, or Morton's disease.

The etiology of pain in the region of the heads of the central metatarsals is variously explained as being due to: (1) irritation of the medial plantar nerve associated with traumatic arthritis or cellulitis; (2) fatigue of the small intrinsic muscles in the sole of the foot; (3) strain of the ligaments that hold the heads of the metatarsals together; (4) excessive direct pressure on the heads of the second, chiefly, and third metatarsals; (5) trauma superimposed on arthritic joints at the heads of these central metatarsals, particularly where a patient shows signs of arthritis elsewhere; (6) callus formation associated with pressure.

This painful condition of the foot is most commonly associated with metatarsus primus varus, hallux valgus, and bunion formation. There is another anatomical relationship to this painful condition in those persons who have a short first metatarsal, which leaves the heads of the central metatarsals exposed to greater weight-bearing. Such appear to fare reasonably well so long as the weight-bearing on the central metatarsals is on soft or moderately soft footing, but when they are called upon to bear considerable weight upon the smaller heads of the central metatarsals on hard surfaces such as cement,

hardwood floors, etc., the disability of pain and aching develops.

Women suffer four times as much with deformity of their feet as men do. This is indicated in Table I where 80.7 per cent of patients

TABLE I.

Number of patients operated on 1930-34			
Public Ward.....	57		
Number returned for observation.....	15		
Number feet operated on returned.....	28		
Number total bunion cases admitted.....	111		
Number females.....	46	80.7%	
Number males.....	11	19.3%	

who came for operation for bunions to the Toronto General Hospital were women. All of the cases reported here are in women. This finding indicates that footwear has most to do with deformity and pain in the anterior part of the foot, as women wear much more deforming footwear than men. The next most common cause appears to be hard-surfaced footing.

Table II shows the results in the three types of operations used at this hospital for bunions.

The possibility of some surgical procedure which would hold the anterior part of the foot

TABLE II.

Type of operation	Good	Fair	Poor	Total number of feet
Cartilage replacement (Gallie type)	14 87.4%	1 6.3%	1 6.3%	16 57.1%
Total excision of head (use of capsule)...	6 75%	1 12.5%	1 12.5%	8 28.5%
Exostosis only removed....	1 25%	2 50%	1 25%	4 14.4%

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